

## NOTES ON INDO-CHINESE MIMOSACEÆ

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NIELSEN, I. — 28.01.1980, Notes on Indo-Chinese Mimosaceæ, *Adansonia*, ser. 2, 19 (3) : 339-363, Paris, ISSN 0001-804X.

ABSTRACT: Taxonomic and nomenclatural updating of S.E. Asian *Mimosaceæ*, in connection with a revision for the Floras of Thailand and of Cambodia, Laos & Vietnam. Genera dealt with: *Parkia*, *Adenanthera*, *Entada*, *Xylia*, *Acacia* (especially subgen. *Aculeiferum*).

RÉSUMÉ : Mises au point taxonomiques et nomenclaturales dans les Mimosacées du S.E. asiatique, dans le cadre de leur révision pour les Flores du Cambodge, Laos, Viêt-Nam et de Thaïlande. Genres concernés : *Parkia*, *Adenanthera*, *Entada*, *Xylia*, *Acacia* (notamment le subgen. *Aculeiferum*).

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During my preparation of the *Mimosaceæ* for Flore du Cambodge du Laos et du Viêt-Nam and Flora of Thailand I often had to evaluate taxa outside the area covered by the two floras. New species, changes in nomenclature, new synonyms and miscellaneous notes on the variation of the taxa and their geography too detailed for more concise floras is published here, whereas full descriptions, synonymy and references will appear in the floras. The Latin descriptions of the new species apply to the holotypes only, whereas the characters of the paratypes are included in the English descriptions. A mimeographed list of specimens studied is obtainable at Botanical Institute, 68 Nordlandsvej, DK-8240 Risskov, Denmark. Mrs. K. TIND made the drawings.

### PARKIA R. Brown

in DENH. & CLAPP., Trav. App. : 234 (1826).

#### *Parkia sumatrana* Miquel

Fl. Ind. Bat., Suppl. 1, Sumatra : 284 (1860).

- *Parkia streptocarpa* HANCE, J. Bot., London 14 : 258 (1876); type : *Pierre s.n.*, 2.1874, « In insula Phu Kok, sinus Siamensis » (holo-, P; iso-, BM, K).
- *Parkia dongnaiensis* PIERRE, Fl. For. Cochinch. 5 : tab. 393 A (1899); type : *Pierre* 5817, 2.1877, « Ad Chia xhan in præfectura Bienhoa » (holo-, P; iso-, P).

TYPE : *Diepenhorst s.n.*, Sumatra, Prov. Priaman (holo-, U; iso-, K).

Sumatra, Borneo, Malay Peninsula, Burma, Cambodia, Laos, S. Vietnam.

It is easily distinguished by its large, truncate-rounded leaflets. There is a tendency that the Indo-Chinese specimens have smaller and more numerous leaflets; maybe this is due to clinal variation.

*Parkia insignis* Kurz, J. Asiat. Soc. Beng. 42 (2) : 74 (1873), probably belongs here. It was described on Kurz 1742 (CAL), Martaban, Burma, which consists of fallen inflorescences only. I have put it here on base of the leaf-characters given by KURZ.

### *Parkia timoriana* (A. DC.) Merrill

- Philipp. J. Sci., Bot. 5 : 33 (1910).  
— *Inga timoriana* A. DC., Prodr. 2 : 422 (1825).  
— *Parkia roxburghii* G. DON, Gen. Hist. 2 : 397 (1832); type : *Smith in Wallich 5288 B*, Calcutta (holo-, K).  
— *Mimosa biglobosa* auct. non JACQ. : ROXB., Fl. Ind. 2 : 551 (1832).  
— *Parkia biglobosa* auct. non (JACQ.) BENTH. : BENTH., J. Bot. (Hooker) 4 : 328 (1842), p.p.  
— *Parkia javanica* auct. vix (LAM.) MERRILL : MERRILL, Sp. Blancoana : 168 (1918).

TYPE : *s. coll.*, *s.n.*, Timor (holo-, G-DC).

Tropical Asia (India to New Guinea), also cultivated.

MERRILL (1918) based his *Parkia javanica* on *Gleditschia javanica* Lamarck, Encycl. 2 : 466 (1788). LAMARCK's reference is "Acacia javanica non spinosa, foliis maximis, splendentibus. Com. Hort. l. p. 207 t. 206. Raj. 477 N° 29. Pluk. t. 123. Cadawang indigenus". Apparently no type exists of that in the LAMARCK herbarium at Paris (P-LA). MERRILL then based the species on the first reference given by LAMARCK, Commelijn, Rar. Pl. Hort. Med. Amstel. 2 : 207, tab. 106 (1697). This figure shows a small sterile plant whose leaves have only 4 pairs of pinnae and ovate, obtuse leaflets. *Gleditschia javanica* Lamarck is different from the species given as synonym under it by MERRILL (1918) : *P. roxburghii* G. Don and *P. timoriana* (A. DC.) Merr. as the leaves have (14-) 22-23 pairs of pinnae with falcate, acute leaflets with the apex bent forwards. The name *Gleditschia javanica* Lamarck is regarded as a dubious name.

### ADENANTHERA L.

Sp. Pl. : 384 (1753).

**Adenanthera pavonina** L. var. **microsperma** (Teijsmann & Binnendijk)

I. Nielsen, *stat. nov.*

- *Adenanthera microsperma* TEIJSMANN & BINNENDIJK, Natuurk. Tijdschr. Ned. Indië 27 : 58 (1864); type : ? *Teijsmann s.n.*, Java.  
 — *Adenanthera tamarindifolia* PIERRE, Fl. For. Cochinch. 5 : tab. 392 A (1899); type : *Pierre 6552*, 12.1865, Ba Ria, Bien hoa, S. Vietnam (holo-, P; iso-, K).

This variety has a more Eastern distribution than var. *pavonina*, who is described from Ceylon, and probably is an escape from cultivation in Indo-China.

I have not been able to trace the type of *Adenanthera microsperma* in neither Leiden nor Utrecht. It is placed here on base of the description of TEIJSMANN & BINNENDIJK.

The main differences between the two varieties are as follow:

var. <i>pavonina</i>	var. <i>microsperma</i>
Pedice! and calyx glabrous.	Pedice! and calyx usually puberulous to sericeous (occasionally glabrous).
Calyx 0.8-1 mm long.	Calyx 0.5-0.8(1) mm long.
Petals 3-4.5 mm long.	Petals (2-)2.5-3.1 mm long.
Pod ca. 12-16 mm broad not densely contorted before dehiscence.	Pod 8-ca. 12 mm broad, densely contorted before dehiscence.
Seeds 7.1-8 × 8.3-8.5 mm suborbicular to heartshaped.	Seeds 5-8 × 4.5-7 mm, suborbicular to ellipsoid.

**ENTADA** Adanson

Fam. Pl. 2 : 318 (1763); BRENNAN, Kew Bull. 10 (2) : 161 (1955); *ibid.* 20 (3) : 361 (1967).

The genus has ca. 30, mainly tropical species; ca. 9 species in Asia, 5(-6?) are found in Indo-China and Thailand.

The genus is by RICKETT & STAFLEU (Taxon 8(9):288, 1959), typified by the species *Mimosa entada* L., based on the plate and description by RHEEDE (Hort. Malabar. 9:151, tab. 77, 1689).

As pointed out by BRENNAN (Kew Bull. 1955:162 & 164, 1955) this plate was also the base of *E. monostachya* A. DC. (Prodr. 2:425, 1825), which is a synonym of *E. pursaetha* A. DC. The choice of RICKETT & STAFLEU is a bit unfortunate as RHEEDE's plate (*l.c.*) shows leaves and flowers only,

but not pods, which are pertinent for the identity of the genus. A better choice would have been *Entada phaseoloides* (L.) Merr., based on *Lens phaseoloides* L. (Herb. Amboin.:18, 1754) which is clearly typified, being based on *Faba marina* Rumphius (Herb. Amboin. 5:5-8, tab. 4 (1750).

***Entada glandulosa* Pierre ex Gagnepain**

Not. Syst., Paris 2 : 57 (1911).

— *Entada tamarindifolia* PIERRE ex GAGNEPAIN, l.c. : 59 (1911), p.p., quoad specimen Thorel « 1427, p.p. ».

LECTOTYPE : *Massie s.n.*, Laos, P.

Thailand, Laos, Cambodia and S. Vietnam.

***Entada laotica* Gagnepain**

Bull. Soc. Bot. Fr. 99 : 46 (1952).

TYPE : *Poillane 20691*, Laos (holo-, P; iso-, K).

N.E. India, Nepal, Assam, S. China (Yunnan), Burma and Laos.

This species belongs to the entity "C" mentioned by BRENNAN (Kew Bull. 1955 : 165, 1955). Unfortunately no pods are known from this species, which in all characters but for the puberulous to velutinous calyx seems to be similar to *Entada pursætha* DC. Careful collections of flowers and fruits from the same specimen must be done before the true relationships of this species can be elucidated.

***Entada phaseoloides* (L.) Merrill**

Philipp. J. Sci. Bot. 9 : 86 (1914).

— *Lens phaseoloides* L., Herb. Amboin. : 18 (1754).

— *Entada tonkinensis* GAGNEPAIN, Not. Syst., Paris 2 : 60 (1911); type : *Balansa 2130*, N. Vietnam (holo-, P).

TYPE : *Faba marina*, RUMPHIUS, Herb. Amb. 5 : 5-8, tab. 4 (1750).

S. China, N. Vietnam, Philippines to N. Guinea, Australia, Oceania.

Has only been collected a few times in Mainland Asia, but is rather common in Malesia and Oceania. It tends to have slightly larger and

more obliquely ovate-elliptic leaflets, opposed to the obovate to elliptic-lanceolate ones of *E. pursætha*, which is common in Africa and Mainland Asia. The only difference between the two species is the consistency of the endocarp, being woody in *E. pursætha* (3-4 pairs of leaflets per pinna) and parchment-like in *E. phaseoloides* (1-2(-4) pairs of leaflets per pinna). The other distinguishing character, the number of leaflets per pinna, is obscured by the fact that specimens from Borneo described as *E. borneensis* Ridley (J. Asiat. Soc. Beng. 67 (2): 307, 1898) and specimens from Hainan have up to 6-7 pairs of leaflets per pinna and pods with parchment-like, thin endocarp.

***Entada pursætha* A. DC.**

Prodr. 2 : 425 (1825).

- *Entada schefferi* RIDL., J. Bot. 58 : 195 (1920); CRAIB, Fl. Siam. En. 1 : 543 (1928); type : *Entada pursætha* SCHEFFER, Obs. Phyt. 3 : 90, tab. 16, 18. (= Natuurk. Tijdschr. Ned. Ind. : 412, 1873).

TYPE : *Delessert s.n.* (1822), « Colitur in insul. franciæ », Mauritius (holo-, G-DC).

Asia, Oceania, Africa.

*E. schefferi* Ridl. was a mixture of at least two species. It was based on the figure in SCHEFFER (*l.c.*), which belongs to *E. pursætha*, while two of the specimens cited by RIDLEY (*Scortechini* 769, K and *Wallich* 5293, K) belong to *E. spiralis* Ridl. *Haniff & Nur* 3894, K, from Phuket, Thailand, cited by CRAIB (*l.c.*) also belongs to *E. pursætha*.

***Entada reticulata* Gagnepain**

Not. Syst., Paris 2 : 59 (1911).

- *Entada tamarindifolia* PIERRE ex GAGNEPAIN, Not. Syst., Paris 2 : 59 (1911), *p.p.*

TYPE : *Thorel* 1427, *p.p.*, Laos, Bassac (holo-, P).

Cambodia and Laos.

*Entada tamarindifolia* was based on two different specimens: *Thorel* "1427, *p.p.*", Laos, P (= *Entada glandulosa*) and *Pierre* 6039, Rang-coao, Cambodia, P (= *Entada reticulata*).

The three names were published in the same paper by GAGNEPAIN (*l.c.*). As *E. glandulosa* (based on *Massie s.n.*, Laos (lectotype) and

*Pierre 1021*<sup>1</sup>, Cambodia) and *E. reticulata* (based on *Thorel 1427, p.p.*, Laos) both are clearly defined, the name *E. tamarindifolia* Gagnepain is discarded.

## XYLIA Bentham

J. Bot. (Hooker) 4 : 417 (1842).

***Xylia xylocarpa* (Roxburgh) Taubert var. *kerrii* (Craib & Hutch.)**  
I. Nielsen, *stat. nov.*

— *Xylia kerrii* CRAIB & HUTCH., Kew Bull. 1909 : 357 (1909).

TYPE : *Kerr 547* (holo-, K; iso-, BM).

*Xylia kerrii* was distinguished from *X. xylocarpa* by CRAIB & HUTCHINSON (*l.c.*) by having leaflets puberulous below and anthers without glands. However, the leaflets may rarely be seen to be glabrescent, and the pods of the Asian material cannot be separated in two groups. I have kept var. *kerrii* as a variety because of its constancy in lacking glands on the anthers; var. *kerrii* is found in Burma, Laos, Cambodia and Vietnam whereas var. *xylocarpa* is found in India and Burma.

## ACACIA Miller

Gard. Dict., abridg. ed. : 4 (1754).

— *Delaportea* THOREL ex GAGNEPAIN, Not. Syst., Paris 2 : 117 (1911).

— *Nimiria* PRAIN ex CRAIB, Kew Bull. 1927 : 393 (1927).

### Subgen. *Acacia*

Stipules spinescent; internodes unarmed, leaves bipinnate.

***Acacia craibii* I. Nielsen, *nom. nov.***

— *Nimiria siamensis* CRAIB, Kew Bull. 1927 : 383 (1927).

TYPE : *Kerr 10180* (holo-, K; iso-, ABD, BM).

Thailand (endemic).

1. Cited '1026' by mistake in GAGNEPAIN, *l.c.* : 57.

The genus *Nimiria* was described by CRAIB (1927) because the filaments were supposed to form a tube. They are, however, quite free from each other as in the other species referred hereto by CRAIB, *A. inopinata* Prain.

The new name is necessary because the name *Acacia siamensis* (= *A. harmandiana*) is preoccupied (*A. siamensis* Craib, Kew Bull. 1927: 392 (1927)).

***Acacia harmandiana* (Pierre) Gagnepain**

Not. Syst., Paris 2 : 115 (1911).

- *Pithecolobium ? harmandianum* PIERRE, Fl. For. Cochinch. 5 : tab. 394 A (1899).
- *Pithecolobium mekongense* PIERRE, l.c. : tab. 396 B; type : Harmand 58 (Pierre 5981) (holo-, P).
- *Delaportea armata* THOREL ex GAGNEPAIN, Not. Syst., Paris 2 : 118 (1911); type : Thorel 2138 (not 2137) (holo-, P).
- *Acacia siamensis* CRAIB, Kew Bull. 1927 : 392 (1927); type : Kerr 8221 (holo-, K; iso-, ABD, BM, E).

LECTOTYPE : Harmand 77 & 125 (Pierre 5982), P; iso-, E, K.

Thailand and Laos.

The species belongs to the genus *Acacia*, having more than 10 free stamens per flower. The glandular appendages on the anthers mentioned by GAGNEPAIN (l.c.) in his description of the genus *Delaportea* is found in most other Asian Acacias and is not given generic merit.

The type of this species is a sheet in the Paris herbarium, which bears the annotation "*Pithecolobium ? harmandianum*" "*Harmand 77 & 125 secus flumen Mekong ad Khong*" in PIERRE's handwriting. Apparently there has been some mixing of the labels as two other specimens: *Harmand 77* collected 12/75 (= December 1875) "*Bords du Me-Khong (Laos)*" and *Harmand 125*, *Bassin du Se-Moun (Laos méridional)* both are annotated "*Acacia harmandiana*" by GAGNEPAIN.

***Acacia leucophlœa* (Roxburgh) Willdenow**

Sp. Pl. 4 : 1083 (1806).

- *Mimosa leucophlœa* ROXB., Pl. Corom. 2 : 27, tab. 150 (1800).
- *Acacia arcuata* DECNE., Herb. Tim. Descr. : 133 (1835); type : Decaisne s.n. (iso-, K).
- *Delaportea microphylla* GAGNEPAIN, Bull. Soc. Bot. Fr. 99 : 46 (1952); lectotype : Poilane 30543, P.
- *D. ferox* GAGNEPAIN, l.c. : 47 (1952); type : Eyraud 1632 (holo-, P).

LECTOTYPE : Roxburgh, Pl. Corom. 2 : tab. 150 (1800).

India, Burma, Thailand, Indo-China and the Malay Archipelago (Java-Timor).

I have not been able to trace any ROXBURGH collections and therefore consider the excellent drawing in ROXBURGH, Pl. Corom. 2: *tab. 150* (1800) as the type of this species.

*Delaporteia microphylla* was based on two collections, *Poillane 9470* and *Poillane 30543* (not 30545 as stated by GAGNEPAIN in the protologue). The latter is the best preserved, in accordance with the description and therefore considered as lectotype.

Because of the habit of tree and the relatively few stamens (20-25) with glandular appendages, GAGNEPAIN referred it to the genus *Delaporteia*.

### Subgen. *Aculeiferum* Vassal

Bull. Soc. Hist. Nat. Toulouse 108 : 138 (1972).

Stipules not spinescent; thorns scattered on the internodes; leaves bipinnate.

The taxonomy of this pantropical group is difficult. It consists of about 27 species in tropical Asia distributed from India/Ceylon to New Guinea. The richest variation is seen in Mainland Asia, especially in India and Indo-China.

A key to and an enumeration of the species in Burma, Thailand, Cambodia, Laos and Vietnam is given below. Some of the S. Chinese species, which may be found in the area are also keyed out.

### KEY TO THE SPECIES

1. Flowers in spikes,
  2. Stems reddish velutinous hirsute; leaflets acute-apiculate . . . 4. *A. donnaiensis*
  - 2'. Stems greyish, glabrous; leaflets obtuse. S. China . . . *A. yunnanensis* Franch.
- 1'. Flowers in heads.
  3. Leaflets alternate . . . . . 2. *A. comosa*
  - 3'. Leaflets opposite.
    4. Main vein of leaflets starting centrally or subcentrally.
      5. Base of leaflets fully truncate; leaflets densely puberulous, villous or strigose beneath.
        6. Bracts projecting beyond the flowers in bud, calyx lobes only adnate at the base . . . . . 13. *A. tonkinensis*
        - 6'. Bracts do not project beyond the flowers in bud, calyx lobes united high up . . . . . 14. *A. torta*
      - 5'. Base of leaflets rounded to cuneate in the distal pointing part; leaflets glabrous to faintly adpressedly puberulous beneath.
        7. Leaflets subtrapezoid to obliquely obovate, large, (5-) 28 × (8-) 75 mm . . . . . 5. *A. meeboldii*
        - 7'. Leaflets oblong to falcate, small, 0.3-5.5 × 1.5-15 mm . . . . . 1. *A. caesia*



- 4'. Main vein of leaflets starting marginally.
8. Lateral veins of leaflets forming a reticulate pattern beneath.
  9. Main vein parallel to the upper margin of the leaflet. .... 15. *A. vietnamensis*
  - 9'. Main vein not parallel to the upper margin of the leaflet.
  10. Leaves crowded on short-shoots; pods tightly curled, slightly inflated ..... 12. *A. thailandica*
  - 10'. Leaves evenly scattered along the stem; pods straight, not inflated.
  11. Leaflets membranaceous, with a wrinkled appearance when dried; pods fleshy with wrinkled surfaces, seeming to break into segments ..... 3. *A. concinna*
  - 11'. Leaflets chartaceous, without a wrinkled appearance when dried; pods chartaceous, smooth, not seeming to break into segments.
  12. Calyx (excl. teeth) hairy.
    13. Leaflets glabrous ..... 11. *A. pseudo-intsia*
    - 13'. Leaflets puberulous. S. China. .... *A. teniana* Harms
  - 12'. Calyx (excl. teeth) glabrous.
  14. Branchlets bluish tinged,  $\pm$  puberulous to tomentose when young. .... 10. *A. pruinescens*
  - 14'. Branchlets brownish, glabrous.
    15. Leaflets sharply acute. S. China ..... *A. delavayi* Franch.
    - 15'. Leaflets obtuse to rounded. .... 9. *A. andamanica*
- 8'. Lateral veins of leaflets do not form a reticulate pattern beneath.
16. Petiolar gland in the lower half of the petiole usually just above the basal pulvinous.
17. Leaflets obtuse. .... 6 c. *A. megaladena* var. *indo-chinensis*
- 17'. Leaflets acute.
18. Leaflets straight; main vein of leaflets not parallel to the upper margin in the proximal half.
19. Petiolar gland circular to broadly elliptic with outwards bent margins; rachis glands below the junction of the 1-6 distal pairs of pinnæ ..... 7 c. *A. pennata* subsp. *kerrii*
- 19'. Petiolar gland narrowly circular to columnar; rachis glands at the junctions of the 8-14 distal pairs of pinnæ. .... 8. *A. pluricapitata*
- 18'. Apex of leaflets bent forwards; main vein of leaflets parallel to the upper margin at least in the proximal half. .... 7. *A. pennata*
- 16'. Petiolar gland at or above the middle of the petiole.
20. Rachis glands at the junctions of the 8-14 distal pairs of pinnæ; leaflets acute. .... 8. *A. pluricapitata*
- 20'. Rachis glands below the junctions of the 1-4 distal pairs of pinnæ; leaflets obtuse.
21. Bracts do not project beyond the flowers in bud ..... 6. *A. megaladena*
- 21'. Bracts do project beyond the flowers in bud. .... 16. *A. sp. in obs.*

### 1. *Acacia cæsia* (L.) Willdenow

- Sp. Pl. 4 : 1090 (1806); CRAIB, Kew Bull. 1915 : 408 (1915).  
— *Mimosa cæsia* L., Sp. Pl. : 522 (1753).  
— *Acacia columnaris* CRAIB, Kew Bull. 1915 : 410 (1915); type : *Hohenacker 1643* (holo-, K; iso-, BM).

TYPE : *Herman*, Ceylon (holo-, BM).

var. *subnuda* (Craib) I. Nielsen, *comb. nov.*

- *Acacia oxyphylla* GRAHAM ex BENTH. var. *subnuda* CRAIB, Fl. Siam. En. 1 : 550 (1928).  
— *Acacia oxyphylla* GRAHAM ex BENTH., London J. Bot. 1 : 514 (1842); type : *Wallich 5252 A* (holo-, K; iso-, BM, K-W).

TYPE : *Winit 1463* (holo-, K; iso-, ABD, BKF, C).

Var. *cæsia*, which is found in S. India and Ceylon, has a cornute-columnar petiolar gland; var. *subnuda*, which is found in N. India, Burma, Thailand and Indo-China, has an elliptic, concave to crater-shaped petiolar gland. Var. *subnuda* is the oldest available epithet within the same rank and has to be used also under *Acacia cæsia*. Indumentum of leaflets and width of the pods is very variable in this species. This is the reason why no taxonomic ranks has been applied to this variation.

### 2. *Acacia comosa* Gagnepain

Not. Syst., Paris 2 : 113 (1911).

LECTOTYPE : *Pierre s.n.* (herb. n. 5977), 3.1869, S. Vietnam, Bien Hoa, P; iso-, K, L.

Thailand, Laos, S. Vietnam.

### 3. *Acacia concinna* (Willdenow) A. DC.

- Prodr. 2 : 464 (1825); VERDC., Kew Bull. 32 : 471 (1978).  
— *Mimosa concinna* WILLD., Sp. Pl. 4 : 1039 (1806).  
— *Acacia rugata* HAMILTON ex BENTH. var. *concinna* (WILLENOW) KURZ, J. Asiatic Soc. Beng. 45 (2) : 297 (1876).  
— *Mimosa rugata* LAM., Encycl. Méth., Bot. 1 : 20 (1783); type : *Sonnerat s.n.*, India, « le grand acacia épineux mimosa rugata enc. » (holo-, P-LA).  
— *Acacia polycephala* A. DC., Prodr. 2 : 473 (1825); type : *s. coll., s.n.* « Ile de France ou de Bourbon » (Réunion), G-DC.  
— *Acacia rugata* HAMILTON ex BENTH., London J. Bot. 1 : 514 (1842).  
— *Acacia rugata* (LAM.) BUCH. ex VORGT, Hort. Suburb. Calc. : 263 (1845).  
— *Acacia concinna* (WILLD.) A. DC. var. *rugata* (HAMILTON ex BENTH.) BAKER, in HOOK. f., El. Br. Ind. 2 : 297 (1878).  
— *Acacia philippinarum* BENTH., l.c. : 514 (1842), *p.p., quoad Cuming 1166 p.p.*  
— *Acacia hooperiana* ZIPPET ex MIQ., Fl. Ind. Bat. 1 : 10 (1855); type : *Zippel s.n.*, Java, L.  
— *Acacia hooperiana* var. *subnuda* MIQ., l.c. : 11 (1855); type : *Blume s.n.*, Java, L.

- *Acacia rugata* HAMILTON, in WALL. Cat. n. 5251 (1831-32), nom. nud.  
— *Acacia pennata* auct. non (L.) WILLD. : MERRILL, Sp. Blancoanae : 167 (1918), p.p.,  
quoad spec. n. 259 et 887.

TYPE : *D. Klein s.n.*, Ind. Or., B-W.

Tropical Asia (India-New Guinea).

Both from India and New Guinea this species is reported to be either a low tree with straggling branches, a shrub or a climber (see VERDCOURT, *l.c.*).

This species is recognized primarily by the thick, sinuate, fleshy pods with very wrinkled valves in dry condition. It is also characterized by the usually axillary peduncles and very thin, membranaceous leaflets, which are often wrinkled when dry.

*Acacia concinna* is the only species of the genus in Indo-China, where both pubescent and glabrous ovaries are found. GAMBLE (Fl. Madras 1: 304, 1918) distinguishes two species; BAKER (*l.c.*) and KURZ (*l.c.*) two varieties; 1) *A. rugata*: 4-6 pairs of pinnæ; leaflets about 18 pairs, 0.5-0.75 in. long, 0.15-0.2 in. broad; ovary pubescent; pod 1-1.25 in. broad; 2) *A. concinna*: 8 or more pairs of pinnæ; leaflets more than 20 pairs, 0.25-0.5 in. long, 0.04-0.10 in. broad; ovary glabrous; pod 0.75 in. broad. Specimens with glabrous ovaries and few pairs of pinnæ are found in Thailand (for example: *Kerr 6757, 17414, 18528, ABD*). That is the reason why I have treated them as one species. VOIGT (Hort. Suburb. Calc. 263, 1845) published the name « *Acacia rugata* (Lam.) Buch. », MERRILL (Philipp. J. Sci., Bot. 5 : 28, 1910) published the name *Acacia rugata* (Lam.) Hamilton. It is likely that *A. rugata* Ham. was an identification based on *Mimosa rugata* Lam., but it is not possible to prove that. MERRILL (1935) when publishing *Acacia sinuata* corrected his earlier treatment, not accepting the entry in WALLICH's Catalogue as a valid combination. *Acacia rugata* Lam. was thus preoccupied by *Acacia rugata* Hamilton ex Benth. (1842), which is the first use of the epithet in *Acacia*. The oldest epithet available is then *Acacia concinna* (Willd.) A. DC. (1825).

*Acacia sinuata* (Loureiro) Merrill (Trans. Amer. Philos. Soc. Philadelphia 24 (2): 186, 1935) based on *Mimosa sinuata* Loureiro (Fl. Cochinch. 653, 1790) probably belongs here. MERRILL (*l.c.*) did not mention any type specimens. I have not been able to trace any neither in P nor BM. The name is regarded as dubious.

#### 4. *Acacia donnaiensis* Gagnepain

Not. Syst., Paris 2 : 114 (1911).

LECTOTYPE : *Harmand 965*, S. Vietnam, bord du Donnaï, 11.1876, P.

S. Vietnam; Borneo (Kalimantan : *Endert 2526, 3033, K*; Sabah : *Meijer 20241, K*), new record! This species thus shows a distribution

pattern similar to *Albizia corniculata*, *Parkia sumatrana* and *Acacia pluricapitata*.

# 5. *Acacia meeboldii* Craib

Kew Bull. 1927 : 66 (1927).

LECTOTYPE : *Kerr J2197*, ABD; iso-, BM, K.

Lower Burma, Peninsular Thailand.

This species has the largest leaflets, (5-)28 × (8-)75 mm, hitherto known in Asian Acacias.

# 6. *Acacia megaladena* Desvaux

J. Bot. (DESVAUX) 1 : 69 (1814); BRENNAN & EXELL, Bol. Soc. Brot., ser. 2, 31 : 102 (1957).

— *Acacia arrophula* D. DON, Prod. Fl. Nepal. : 247 (1825); type : *Wallich 5257* (holo-, K; iso-, BM).

— *Albizzia tenerrima* DE VRIESE, in MIQ., Pl. Jungh. 2 : 270 (1852); type : *Junghuhn 81* (holo-, K).

— *Acacia tenerrima* (DE VRIESE) MIQ., Fl. Ind. Bat. 1 : 14 (1855).

— ? *Acacia brunnescens* PARKINSON, Kew Bull. 1932 : 103 (1932); type : *C. E. Parkinson s.n.* (holo-, ?).

TYPE : *Desvaux s.n.* (holo-, P).

Combined with *A. pennata* by many authors. BRENNAN & EXELL (*l.c.*) drew the attention to the differences between the two species. I partly agree with their opinion and have found the following characters valuable in distinguishing the two species:

<i>A. megaladena</i>	<i>A. pennata</i>
Petiole gland at or above the middle of the petiole (flowering specimens).	Petiole gland below the middle of the petiole, usually just above the basal pulvinus.
Leaflets obtuse, straight.	Leaflets sharply acute, apex often bent forwards.

The other character mentioned by BRENNAN & EXELL, the lateral veins of the leaflets conspicuous and raised beneath, is not a constant character outside India.

I have only hesitatingly included *A. brunnescens* Parkinson in the synonymy. I have not been able to trace the type and have reduced

the species on base of the characters mentioned in PARKINSON's description where the leaflet is said to have a rounded apex and 8-10 mm long and 1.7-2 mm wide.

The species is very variable. A key is given to the Indo-Chinese varieties:

# KEY TO THE VARIETIES

1. Calyx glabrous to faintly puberulous; corolla 2-3.4 mm long.
2. Leaflets 0.8-1.5 mm broad; lateral veins usually raised, prominent ..... var. *megaladena*
- 2'. Leaflets (0.3-)0.5-0.8 mm broad; lateral veins prominulous to inconspicuous, not raised ..... var. *indo-chinensis*
- 1'. Calyx velutinous; corolla 4.2 mm long ..... var. *garrettii*

## var. *megaladena*

India, Nepal, S. China (Yunnan), Burma, Laos, N. Vietnam, Java.

## var. *indo-chinensis* I. Nielsen, var. nov.

— *Acacia pennata* (L.) WILLD. var. *arrophula* auct. non (D. DON) BAKER : CRAIB, Fl. Siam. En. 1 : 550 (1928), p.p.

*A. varietate megaladena foliolis (0.3-) 0.5-0.8 mm latis, nervis lateralibus prominulis ad inconspicuis, nullo modo elevatis differt.*

TYPE : Larsen, Smitinand & Warncke 375, Thailand, S.E., Prachin Buri; Khao Yai National Park, alt. 750 m (holo-, AAU).

Thailand, Laos, S. Vietnam.

The type of *A. arrophula* D. Don, has as large leaflets as the type of *A. megaladena* Desv. and differs in no important characters. Accordingly this variety with small leaflets cannot be given the name var. *arrophula* as was done by CRAIB.

Some fruiting specimens have the petiolar gland in the lower half of the petiole, but may be recognized by the obtuse leaflets (for example: Kerr 4807, K, AAU; Collins 1780, K).

The specimen Marcan 1537 cited together with Kerr 4807 as "*A. pennata*, Willd., vars." in CRAIB (l.c. : 551) belongs here.

## var. *garrettii* I. Nielsen, var. nov.

*A. varietate megaladena marginibus glandulae petiolaris retroflexis, calyce velutinoso, corolla 4.2 mm longa differt.*

TYPE : Garrett 1239, Thailand, Chiang Mai, Doi Chawm Hot, ca. 1420 m (holo-, K; iso-, ABD, E).

Differs from var. *megaladena* in the following characters: petiolar gland with outwards bent margins; calyx velutinous; corolla 4.2 mm long.

Thailand, S. China (Yunnan).

The variety is not known with mature pods. *Hennipman 3241*, BKF, C, K and *Tsiang 12265*, K, from Yunnan have an unripe pod: 15.6 cm long, 2.5 cm broad, oblong, chartaceous, glabrous, eglandular, with prominent veins and marks over the seeds.

# 7. *Acacia pennata* (L.) Willdenow

Sp. Pl. 4 : 1090 (1806); BRENNAN & EXELL, Bol. Soc. Brot., ser. 2, 31 : 100 (1957).  
— *Mimosa pennata* L., Sp. Pl. : 522 (1753).

TYPE : *Herman* (holo-, BM).

The morphology of this species is very variable. A key to the subspecies found in Indo-China is given below.

## KEY TO THE SUBSPECIES

1. Leaflets sharply acute, apex asymmetrical, bent forwards, often nearly hooked.
2. Flowers distinctly pedicellate..... subsp. *pennata*
- 2'. Flowers sessile.
3. Young stems and inflorescences covered with reddish, glandular hairs, leaflets (0.6-) 0.8-1.5 mm broad..... subsp. *hainanensis*
- 3'. Young stems and inflorescences with scattered glandular hairs only; leaflets (0.3-) 0.5-0.6 mm broad ..... subsp. *insuavis*
- 1'. Leaflets ± broadly acute, apex straight..... subsp. *kerrii*

subsp. *pennata*

Ceylon, India, Burma, Thailand.

subsp. *hainanensis* (Hayata) I. Nielsen, *stat. nov.*

- *Acacia hainanensis* HAYATA, Ic. Pl. Formos. 3 : 83 (1913).  
— *Acacia macrocephala* LACE, Kew Bull. 1915 : 401 (1915); type : *Lace 5787*, Burma, Bhamo (holo-, E; iso-, K).

TYPE : *Katsumada s.n.* (1910), China : Hainan (holo-, TI).

China (Hainan), N. & S. Vietnam, Burma, India (Khasia).

*A. macrocephala* was distinguished from *A. pennata* by its larger flowers: calyx 3.5-4 mm long, corolla 5 mm long. Nearly as long calyces: 1.5-3.5 mm long and corollas: 2.5-4.5 mm long are found in *A. pennata* from India. As the petiolar glands are found in the lower half of the petiole and the leaflets are sharply acute I have reduced *A. macrocephala* to synonymy under *A. pennata*.

*A. pennata* subsp. *hainanensis* is very variable in leaflet-size and number of rachis glands. It may always be known by the dense cover of reddish glandular hairs and the reddish-brown pods.

The petiolar glands of specimens from N. Vietnam (for example *Balansa* 2171, *Chevalier* 29742, *Eberhardt* 3907, 4806, P) tend to be small ca. 0.5 mm in diameter and columnar. In this character and also in the number of rachis-glands the specimens are similar to *Acacia pluricapitata* from S. Vietnam, Thailand and W. Malesia.

<i>A. pluricapitata</i>	<i>A. pennata</i> subsp. <i>hainanensis</i>
Leaflets 0.3-0.5 mm broad; main vein not parallel to the upper margin in the proximal half of the leaflet.	Leaflets (0.6-)0.8-1.5 mm broad; main vein parallel to the upper margin in the proximal half of the leaflet.

subsp. *insuavis* (Lace) I. Nielsen, *stat. nov.*

— *Acacia insuavis* LACE, Kew Bull. 1915 : 401 (1915).

TYPE : *Lace* 6173, Burma (holo-, E; iso-, K).

Burma, Thailand, Cambodia, Laos.

Cultivated as a hedge-row shrub. The leaves are foetid when crushed and used as vegetable.

subsp. *kerrii* I. Nielsen, *subsp. nov.*

*A. subsp. pennata foliolis plus minusve late acutis, costa folioli haud parallela ad marginem superiorem et calyce glabro vel subglabro differt.*

TYPE : *K. Bunchuai* & *B. Nimanong* 1430, Thailand, Chiang Rai, Mae Suai, 25.7.1967 (holo-, K; iso-, BKF, C, P).

Differs from subsp. *pennata* in having  $\pm$  broadly acute leaflets with straight apex, main vein of leaflets not parallel to the upper margin, and a glabrous or nearly glabrous calyx.

N.E. India, Burma, Thailand, Cambodia, Laos, N. & S. Vietnam.

8. *Acacia pluricapitata* Steudel ex Bentham

London J. Bot. 1 : 516 (1842).

— *Acacia pennata* (L.) Willd. var. *pluricapitata* (STEUD. ex BENTH.) BAK., in HOOK. f., Fl. Ind. 2 : 298 (1878).

— *Acacia polycephala* GRAHAM, in WALL., Cat. n. 5255 (1831-32), *nom. nud.*, non A. DC. (1825).

— *Acacia pluricapitata* STEUD., Nomencl., ed. 2, 1 : 7 (1840), *nom. inval.*

TYPE : *G. Porter in Wallich 5255 A*, Malaysia : Penang (holo-, K-W).

Thailand, S. Vietnam, Malay Peninsula, Sumatra, Borneo, Java.

STEUDEL (*l.c.*) based *Acacia pluricapitata* on *Acacia polycephala* Graham, which is a *nomen nudum*. BENTHAM (*l.c.*) produced the first description of this species.

9. *Acacia andamanica* I. Nielsen, *nom. nov.*

— *Acacia pseudo-intsia* MIQUEL var. *ambigua* PRAIN, in KING, J. Asiat. Soc. Beng 66 (2) : 249 & 511 (1897).

— *Acacia pseudo-intsia* auct. non MIQUEL : CRAIB, Fl. Slam. En. 1 : 551 (1928).

LECTOTYPE : *King's Collector s.n.*, Andaman Isl., K.

Andaman Islands, Thailand.

A new name is needed as the name *Acacia ambigua* is preoccupied (*A. ambigua* Hoffmgg. and *A. ambigua* Vogel).

The main differences between *A. andamanica* and *A. pseudo-intsia* are as follow:

<i>A. andamanica</i>	<i>A. pseudo-intsia</i>
Stipules 1-4 × 3-8 mm, half hastate-half cordate.	Stipules ca. 2 mm long, filiform.
Petiolar gland (flowering specimens) in the lower half of the petiole.	Petiolar gland at the middle of the petiole.
Petiolar gland concave.	Petiolar gland cushion-shaped.
Calyx tube glabrous.	Calyx tube densely puberulous to velutinous.
Pod 1.8-2.5 cm broad.	Pod 3.4-5 cm broad.

PRAIN (*l.c.*: 511, 1897) stated that the leaflets of var. *ambigua* were quite glabrous beneath opposed to the typical variety (var. *pseudo-intsia*), where they should be minutely adpressed-puberulous beneath. Only the first statement is true. *Blume s.n.*, Java, L, which is the type of *A. pseudo-*



*intsia* Miquel, has leaflets quite glabrous beneath, as have the other specimens examined by me of that species. PRAIN mixed up two species under his var. *pseudo-intsia*: Ridley 3631 = *Acacia concinna* has the puberulous leaflets and stipules and was referred to *A. pseudo-intsia* by PRAIN. This may explain the error.

#### 10. *Acacia pruinescens* Kurz

J. Asiat. Soc. Beng. 45 (2) : 298 (1876).

LECTOTYPE : *J. D. Anderson s.n.*, 26.4.1866, Burma : Poneshee, CAL.

Burma, S. China (Yunnan), N. Vietnam (new record).

Through the courtesy of the director of the Calcutta Herbarium I received a photo of a specimen annotated by KURZ as "*Acacia pruinescens*". The label says:

Yunan Expedition  
*Acacia pruinescens* Kurz  
Dist. Poneshee

Coll. D. J. Anderson  
26/4 1866

In the protologue KURZ mentions nothing about the plant coming from Yunnan (China). He only states: "Not unfrequent in the tropical forests of the southern Pegu Yomah; also Ava, Khakyen Hills, east of Bhamo (J. Anderson)".

The ANDERSON collection mentioned may be the one cited above from Poneshee. It agrees well with the characters mentioned by KURZ (*l.c.*): "flower heads twice the size of those of the preceeding, and the branchlets, inflorescence, and peduncles are more or less pruinous with or without an admixture of tomentum". It is accordingly selected as type.

#### 11. *Acacia pseudo-intsia* Miquel

Fl. Ind. Bat. 1 : 12 (1855).

— *Acacia macrocephala* LACE var. *siamensis* CRAIB, Fl. Siam. En. 1 : 549 (1928); type : Kerr 10357, Thailand (holo-, K; iso-, ABD, BM).

TYPE : *Blume s.n.*, Java (holo-, L).

Thailand, Malay Peninsula, Java, Sumatra.

Only known from two localities in Thailand, *A. macrocephala* (= *A. pennata* subsp. *hainanensis*) is a Burmese-N. Vietnamese species, which is recognized by its sharply acute leaflets, reddish glands and large flowers, ca. 4-5 mm long. Kerr 10357, base of *A. macrocephala* var. *siamensis* Craib, belongs to *A. pseudo-intsia* because of leaflet characters and the big pod 16-20 cm long and 3.5-5 cm broad.

12. *Acacia thailandica* I. Nielsen, *sp. nov.*

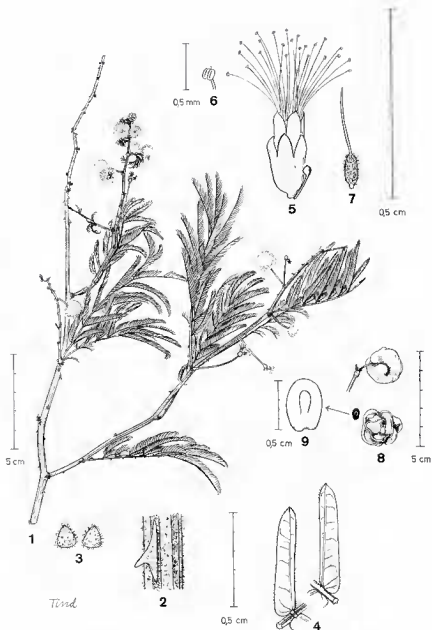
*Frutex ramis effusis vel volubilis, spinis recurvatis sparsis in internodiis nunitis; ramuli dense puberuli ad tomentosos, pilis glandulosis atris tecti, glabrescentes; stipulae late ovatae, acutae, puberulae,  $1 \times 1.2$  mm; paniculae et folia saepe aggregata in brachyblastis ad axillos cicatricum veterum. Folia: petiolus 0.5-0.7 cm longus, glandula sessili, circulari, plus minusve plana, diametro 0.8-1.1 mm, in medio petioli vel inferius, 0.4-0.7 cm supra basin; glandulae rachidum sessiles; foliola 17-44-juga, opposita, sessilia, oblonga, (0.8-)  $1.3 \times (2.5-)$  3-5.5 mm, basi irregulariter truncata, apice acuta, saepe mucronata, utraque superficie glabra, marginibus autem dense ciliata, costa ad initium marginali, margini superiori nullo modo parallela, nervis lateralibus prominentibus, anastomantibus, infra reticulatis. Pedunculi breviter racemosi vel axillares. Flores subsessiles in capitulis, bracteis haud alabastra exstantibus sustentis. Calyx 2 mm, glaber, dentibus 0.5-1 mm longis, ovatis, acutis, glabris; corolla 2.5-2.9 mm longa, glabra, dentibus 1 mm longis, ovatis, acutis, glabris; stamina plurima antheris glandularibus; ovarium 1 mm longum, velutinum, stipite 1 mm longo. Legumen ca. 2 cm latum, parum inflatum, arcu curvatum, griseo-viride, chartaceum, glabrum, nervis prominulis, signisque supra semina; dehiscencia? Semina  $3.5 \times 5.5$  mm, lata elliptica, oblonga, pleurogrammate  $1.1 \times 2.5$  mm. (Semina paratyporum  $4.5 \times 6$  mm, pleurogrammatibus  $1.3 \times 3.3$  mm).*

TYPE : *Put* 2537, Thailand, Central : Ang Thong (holo-, K; iso-, C, P).

PARATYPES : *Kerr* 5985, Thailand : Nakhon Sawan, K; *Lecomte & Finet* 1783, Cambodia, Siem Reap : Angkor, P; *Pierre* 493, Cambodia, Kandal : Phnom Penh, 3,1870, P; *Schmid s.n.*, 2,1969, without locality, P; *Winit* 497 A, Thailand : Kanchanaburi, K.

A shrub with straggling branches or a woody climber, armed with scattered, recurved thorns on the internodes; branchlets densely puberulous to tomentose, covered with dark glandular hairs, glabrescent; stipules  $1 \times 1.2$  mm, broadly ovate, acute, puberulous; leaves and panicles often crowded on short-shoots in the axils of old leafscars. Leaves: petiole 0.5-1.7 cm long, gland 0.4-0.7 cm above the base, at or below the middle of the petiole, ca. 0.8-1.1 mm in diameter, circular,  $\pm$  flat, sessile; rachis glands sessile; leaflets 17-44 pairs per pinna, opposite, sessile, (0.8-)  $1.3 \times (2.5-)$  3-5.5 mm, oblong; base asymmetrically truncate, apex acute, often mucronate; both surfaces glabrous, but margins densely ciliate; main vein starting marginally, not parallel to the upper margin, lateral veins prominent, anastomosing, reticulate beneath. Peduncles shortly racemose or axillary. Flowers subsessile in heads, subtended by bracts, which are not projecting beyond the flowers in bud. Calyx 2 mm, glabrous, teeth 0.5-1 mm long, ovate, acute, glabrous; corolla 2.5-2.9 mm long, glabrous; teeth 1 mm long, ovate, acute, glabrous; stamens numerous, anthers glandular; ovary 1 mm long, velutinous, stipe 1 mm long. Pod ca. 2 cm broad, slightly inflated, tightly curled, greenish-grey, chartaceous, glabrous, with prominent veins and marks over the seeds; dehiscence? Seeds  $3.5 \times 5.5$  mm, broadly elliptic, pleurogram  $1.1 \times 2.5$  mm, oblong. (Seeds ca.  $4.5 \times 6$  mm, pleurogram ca.  $1 \times 3$  mm in the paratypes.)

Only Asian *Acacia* subgen. *Aculeiferum* with curled pods and shoot dimorphy.



Pl. 1. — *Acacia thailandica* I. Nielsen : 1, habitus; 2, young branchlet; 3, stipules; 4, leaflets, upper surface (left) lower surface (right); 5, flower with bract; 6, anther with stalk to gland; 7, ovary; 8, pod, entire (above), transsection (below); 9, seed (immature) (Put 2537).

13. *Acacia tonkinensis* I. Nielsen, *sp. nov.*

*Frutex volubilis, spinis recurvatis sparsis in internodiis armatus; ramuli hirsuti, glandulis pallidis; stipuli 4-6 mm longi, filiformes, hirsuti, praececidui; folia secus caudem aequaliter conspersa. Folia: petiolus 4.5-5.5 cm longus, glandulis duabus; glandula proximalis sessilis, elevata, elliptica, crateriformis, cava, ca. 2 mm longa, in dimidio inferiore petioli posita, 1.0 cm supra basin; glandula distalis sessilis, elevata, circularis, cava, diametro circa 1.5 mm, in medio petioli vel supra posita, 2.5-3 cm supra basin; glandula rachidum sessilis; foliola 17-33-juga, opposita, sessilia, oblonga ad subfalcata, (1.1-) 2-2.5 × (4-) 5-9.5 mm, basi regulariter truncata, apice irregulariter rotundato-truncata, apiculata, introflexa, superficie superiore leviter strigosa, inferiore dense strigosa, marginibus strigosis; costa ab initio centralis, deinde versus apicem medio aberrans, margini superiori haud parallela nervi accessori 1(-2) prominuli e basi initiati, nervi laterales inconspicui.*

*Inflorescentia: pedunculi in paniculis terminalibus hirsutis fasciati; capitula florum sessilium bracteis 2 mm longis, filiformibus, geniculatis, alabastra superantibus sustentata. Flores: lobi calycis basi modo connati, ca. 2 mm longi, oblongi, acuti, sparse pilosi; corolla 2.5 mm longa, glabra, lobis ca. 1 mm longis, triangulari-ovatis, glabris; stamina plurima; ovarium ca. 1 mm longum, puberulum, stipite 1 mm longo.*

TYPE : Wilson 2715, N. Vietnam, Lao Cai, 8.1899 (holo-, K).

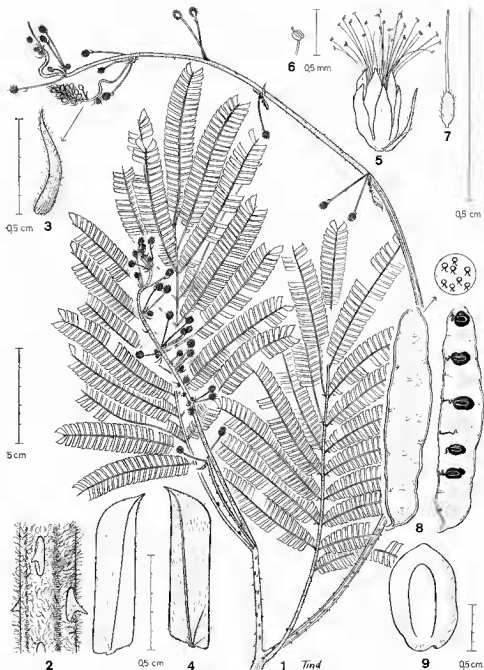
PARATYPE : Balansa 2168, N. Vietnam, Son Tay : Tu-Phap, 23.3.1887, P.

A woody climber armed with scattered, recurved thorns on the internodes; branchlets hirsute, with light glands; stipules 4-6 mm long, filiform, hirsute, early caducous; leaves evenly scattered along the stem. Leaves: petiole (3.2-)4.5-5.5 cm long with two glands: proximal gland (0.5-)1.0 cm above the base, in the lower half of the petiole, ca. (1.2-)2 mm long, elliptic, crater-shaped, (flat-) raised, sessile, hollow; distal gland 2.5-3 cm above the base, at or above the middle of the petiole, ca. 1.5 mm in diameter, circular, raised, sessile, hollow; rachis-glands sessile; leaflets (11-)17-33 pairs per pinna, opposite, sessile, (1.1-)2-2.5(-3) × (4-)5-9.5 mm, oblong to subfalcate; base symmetrically truncate; apex asymmetrically rounded-truncate, apiculate, bent forwards; upper surface faintly strigose, lower densely strigose, margins strigose; main vein starting centrally at the base, running excentrally towards the apex, not parallel to the upper margin, 1(-2) prominent accessory veins ascending from the base; lateral veins inconspicuous.

Inflorescence: peduncles collected in terminal, hirsute panicles; flowers in heads, sessile, subtended by 2 mm long, filiform, geniculate bracts, which are projecting beyond the flowers in bud. Flowers: calyx-lobes only adnate at the base, ca. 2 mm long, oblong, acute, with a few scattered hairs; corolla 2.5 mm long, glabrous, lobes ca. 1 mm long, triangular-ovate, glabrous; stamens numerous; ovary ca. 1 mm long, puberulous, stipe 1 mm long.

Pod (*Balansa* 2168) 1.3-2.4 × 12.5 cm, oblong, with slightly sinuate margins, red-brown, chartaceous, flat, with dark glandular hairs and inconspicuous veins, dehiscent. Seeds 5-7 × 8-12 mm, irregularly elliptical, pleurogram ca. 2 × 4-7 mm, oblong.

This species is related to *Acacia cæsia* from which it differs by: 1) leaflet-base fully truncate; 2) leaflets densely strigose beneath; 3) bracts projecting beyond the flowers in bud; 4) calyx lobes adnate at the base only.



Pl. 2. — *Acacia tonkinensis* I. Nielsen : 1, habitus; 2, young branchlet; 3, stipules; 4, leaflet, upper surface (left), lower surface (right); 5, flower with bract; 6, anther with stalked gland; 7, ovary; 8, pod and detail of surface; 9, seed. (1-8, *Wilson 2715*; 8-9, *Balansa 2168*).

14. *Acacia torta* (Roxburgh) Craib

Kew Bull. 1915 : 410 (1915).

— *Mimosa torta* ROXBURGH, Fl. Ind. 2 : 566 (1832).

TYPE : *Roxburgh drawing n. 1865, K.*

S. & C. India, Thailand.

Only known from one collection in Thailand, *Kerr 16287*, Peninsular: Ranong, Tasan, K.

*A. torta* is related to *A. caxsia* but has puberulous to velutinous leaflets, fully truncate at the base. The KERR collection has immature pods only. It may belong to a new variety as it has 2 petiolar glands. But flowering and fruiting material with ripe pods is needed to describe it properly.

15. *Acacia vietnamensis* I. Nielsen, *sp. nov.*

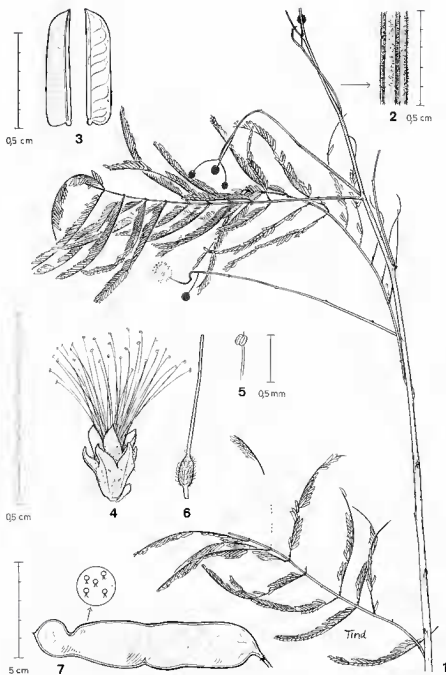
*Frutex scandens vel volubilis (spinis recurvatis sparsis ad internodia armatus, in paratype Poilane 11668) ramuli in partibus distalibus puberuli, pilis glandulosis, glabrescentes; folia secus caulem equaliter conspersa. Folia: petiolus 4-5 cm longus, glandula 0.5-1.0 mm longa, sessili, elevata, elliptica, plana ad subconca, in dimidio inferiore petioli 1.8-2 cm supra basin posita; glandulae rachidum sessiles; foliola circa 25-40-juga, opposita, sessilia, oblonga, 1-1.5 × (3.5-) 4-6.5 mm; basi irregulariter truncata, apice laterali ad marginem superiorem irregulariter acuta, introflexa, superficie superiore glabra, superficie inferiore glabra vel sparse pilosa, marginibus ciliatis; costa excentrica e basi initians, deinde parallela ad marginem superiorem, nervi laterales reticulati, infra prominuli ad prominentes.*

*Inflorescentia: pedunculi ad racemos axillares, ca. 12 cm longas, fasciati; capitula florum sessilium bracteis spatulatis, 1 mm longis, alabastra haud superantibus sustentata. Flores: calyx 1.8-2 mm longus, campanulatus glanduloso-puberulus, dentibus ca. 0.5 mm longis, triangularibus, acutis, glanduloso-puberulis; corolla 2.5 mm longa, glanduloso-puberula, lobis ca. 1.1 mm longis, ellipticis, acutis, glanduloso-pilosis; stamina plurima antheris glandula stipitata, decidua apice connectivi instructis; ovarium ca. 1 mm longum, velutinum, stipite ca. 0.5 mm longo.*

TYPE : *Poilane 19678*, S. Vietnam, Bien Hoa : Dinh-Quan, 13.10.1931 (holo-, K; iso-, P).

PARATYPES : *Poilane 8780*, S. Vietnam, Phan Rang : Ca Na, alt. 400 m, P; *Poilane 11668*, Laos, Savannakhet « Kilo. 20 la route de Savannakhet a Quang Tri », P; *Schmid s.n.*, 10.2.1963, *p.p.* (leaves only), S. Vietnam, P.

A scandent shrub or woody climber armed with scattered, recurved thorns on the internodes (in paratype *Poilane 11668*); branchlets puberulous in the distal parts, with glandular hairs, glabrescent; leaves evenly scattered along the stem. Leaves: petiole (1.8-)4-5 cm long; gland (0.7-1-)1.8-2 cm above the base, in the lower half of the petiole, 0.5-1.0 mm long, elliptic, raised, flat to slightly concave, sessile, rachis glands sessile; leaflets (20-)25-40 pairs per pinna, opposite, sessile 1-1.5(2.1) × (3.5-)4-6.5(-10) mm, oblong, base asymmetrically truncate; apex asymmetrically acute, bent forwards, the tip lateral on the upper margin, upper surface glabrous, lower surface glabrous or with a few scattered hairs, margins ciliate; main



Pl. 3. — *Acacia vietnamensis* l. Nielsen : 1, habitus; 2, young branchlet; 3, leaflet, upper surface (left), lower surface (right); 4, flower with bract; 5, anther with stalk to gland; 6, ovary; 7, pod (immature) and detail of surface. (1-6, *Poillane 19678*; 7, *Poillane 11668*).

vein starting excentrically at the base, running parallel to the upper margin, lateral veins prominulous to prominent beneath, reticulate.

Inflorescence: peduncles collected in axillary racemes ca. 12(-17) cm long; flowers in heads, sessile, subtended by 1 mm long, spatulate bracts, which are not projecting beyond the flowers in bud. Flowers: calyx 1.8-2 mm long, campanulate, glandular puberulous, teeth ca. 0.5 mm long, triangular, acute, glandular puberulous; corolla 2.5 mm long, glandular puberulous; lobes ca. 1.1 mm long, elliptic, acute, glandular haired, stamens numerous, anthers with a stipitate, caducous gland at the apex of the connective; ovary ca. 1 mm long, velutinous, stipe ca. 0.5 mm long.

Pod (*Poilane* 8780, 11668, only immature pods observed) up to  $2.8 \times 11$  cm, oblong, red-brown, chartaceous, flat, with light glandular hairs and inconspicuous veins. Seeds?

This species belongs to the group around *Acacia concinna* with the reticulate lower leaflet-surfaces. It is characterized by: 1) the very asymmetrically acute leaflet-apex; 2) the main vein of the leaflet parallel to the upper margin; 3) the glandular puberulous calyx and corolla.

#### 16. *Acacia* sp., in obs.

*Sorensen, Larsen & Hansen* 2205, Thailand, North Eastern : Khon Kaen, C.

This specimen is by the characters of the pod and seeds closely related to *A. megaladena*: Pod  $2.8-3 \times 18-20$  cm, oblong, red-brown, chartaceous, flat, glabrous, eglandular, without distinct marks over the seeds and inconspicuous veins. Seeds  $5.5-6.5 \times 8-10$  mm, elliptic, flat; pleurogram  $1.5-2 \times 3-4.5$  mm, elliptic-oblong, linea fissura parallel to margins. However, the long filiform bracts are projecting beyond the flowers in bud just as in *A. comosa* and *A. tonkinensis*. Flowering material will show if this entity deserves specific rank.

### IMPERFECTLY KNOWN GENERA

#### *Calliandra* Bentham

J. Bot. (Hooker) 2 : 138 (1840).

*Calliandra* has never been recorded from Indo-China. It is a genus of about 200 species, mainly found in America. It has three species in India-Burma, two of which are armed with stipular thorns.

*Poilane* 9150, S. Vietnam, Phanrang: Ba Ran, 16.12.1923, alt. 600 m, P, has spinescent stipules; the leaves have 1 pair of pinnæ each with 3 pairs of obovate-ovate, opposite, sessile, chartaceous leaflets up to  $3 \times 5.5$  cm.



The pod: 1.5-1.9  $\times$  7-10 cm, stalked, oblong, curved, brown rigidly, chartaceous with thickened margins; the valves are prominent, reticulately veined and elastically recurving from the apex at the dehiscence. Seeds ca. 7  $\times$  9 mm, irregularly elliptical, thickened, brown, with a hard testa with pleurogram.

POILANE noted that the specimen was a 9-10 m high tree ca. 0.80 m in circumference.

The flowers are needed to describe this new species adequately.

ACKNOWLEDGEMENTS: The author is indebted to the directors and curators of the following herbaria, which have sent him plenty of material on loan as well as photos of several types: ABD, BM, C, CAL, E, K, L, P, U. I wish to thank Mrs. H. HOPKINS, Oxford, who sent photos of types of *Parkia* species, Dr. OHASHI, Tokyo, who sent me photos of the type of *Acacia hainanensis*, Anne FOX MAULE, M. Sc., the Botanical Museum, Copenhagen, who latinized the descriptions. Thanks to Dr. VIDAL, Paris, for assistance in getting material and types on loan, to Dr. R. POLHILL, Dr. B. VERDCOURT, Kew, for fruitful discussions during my stay, and to Mr. B. BURTT, Edinburgh, for nomenclatural assistance. Thanks also to Professor Kai LARSEN for critical advice and encouragement during all stages of this study.